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Bibliography and Catalogue of the Fossil Vertebrata of North America.

By OLIVER PERRY HAY. Washington: Bulletin of the United States Geological Survey, No. 179, 1902. Pp. 868.

VERTEBRATE palæontologists, not only of America, but of the world, are under obligations to Dr. Hay for his very useful bibliography and catalogue of North American fossil vertebrates. Only he who has attempted something of the sort, or who has toiled for many hours trying to find what Cope has written upon some given subject—and there are few subjects in vertebrate palæontology that he has not written about—will appreciate, not only the vast amount of painstaking labor that has been involved in the production of the work, but also its value as a time saver. The work is as complete and accurate as any one could expect it to be. Very few American papers are omitted, so far as the writer can discover, and he has discovered but few wrong references, not as many as might be expected from the mere mechanical execution of the book and its proofreading. The work is an indispensable necessity for every student of vertebrate palæontology, for which he can not be too grateful; and it is much more than the title indicates.

There are some, however, who will not wholly agree with the author in the many changes he has made in nomenclature—changes that are not always consistent, but which, while detracting somewhat from the usefulness of the work as a guide, do not affect it as a tool. Such long-established names as *Ichthyosaurus*, *Pterodactylus*, *Mastodon*, *Dicotyles*, *Oreodon*, *Lacertilia*, *Ophidia*, etc., have been ruthlessly decapitated on the score of priority, which sometimes, as in the case of *Pterodactylus*, is a little strained. The older French writers persistently transformed technical zoölogical terms into the vernacular, and doubtless Cuvier intended *Pterodactylus* as the name of the flying reptiles. *Basilosaurus*, though expressing a falsehood, and contrary to the best canons of nomenclature, he accepts in place of the well-known *Zeuglodon*. He refuses to accept *Dinocerata* in place of the wrongly-formed *Dinocerea*, though the latter term was rejected by its author, and yet changes *Toxochelydæ* into *Toxochelyidae*. He accepts *Deinodon* as distinct from *Dinodon*, but rejects *Deinosauria* in favor of *Dinosauria*. As a purist and priorist he goes too far, and becomes involved in difficulties, as is always sure to be the case. Surely it is allowable to correct manifestly wrongly spelled or wrongly Latinized names. But these opinions of the author one need not follow unless he chooses, and he has done a service in calling attention to these trivial but annoying matters of

dispute. One does not always see how the author has been guided in the selection of papers by foreign writers. From the list of over one hundred titles of papers published by Smith Woodward prior to 1900, sixty-nine are recorded. We can only be thankful that so many are given.

The geological survey is to be congratulated upon the publication of the work ; but we cannot help wishing that the printer had left the leaves untrimmed.

S. W. W.

Evolution of the Northern Part of the Lowlands of Southeastern Missouri. By PROFESSOR C. F. MARBUT. *The University of Missouri Studies*, Vol. I, No. 3 (Columbia), July, 1902. viii + 63 pages; plates I-VII.

THE paper is of more than usual interest to physiographers in that it presents in a comprehensive way the history of an extremely interesting locality. It is divided into Parts I and II, the former treating of the geography and geology of the region, and the latter of its physiographic development.

The writer abandons his former ideas of the origin of Crowley's Ridge,¹ and agrees, in the main, with the views of Dr. Branner, published several years ago, while state geologist of Arkansas.² It is shown that the lowland north and west of Crowley's and Benton Ridges, which is spoken of in the paper as the Advance lowland, was formed by the Mississippi at a time when it turned westward at the present site of Cape Girardeau and flowed past Delta, Poplar Bluff, and Neelysville, Mo., and Pocahontas, Powhattan, and Newport, Ark. While the Mississippi was forming the Advance lowland, the Ohio was eroding the broad valley between the eastern edge of Crowley's Ridge and the uplands of western Tennessee, and which the author calls the Cairo lowland.

While the Mississippi is the larger of the two streams, it has twice been captured by the Ohio. The capture of the larger stream by the smaller was made possible by the latter having the lower flood plain. The first capture was effected by a small tributary of the Ohio, working its way headward, through what was then a continuous ridge separating the two great rivers, along or near the present course of Little River; the second, by another small tributary working its way northward from

¹ *Proc. Bos. Soc. Nat. Hist.*, Vol. XXVI (1895), pp. 479-88.

² *Ann. Rep. Geol. Sur. Ark.*, Vol. II (1889), preface, p. xiv.